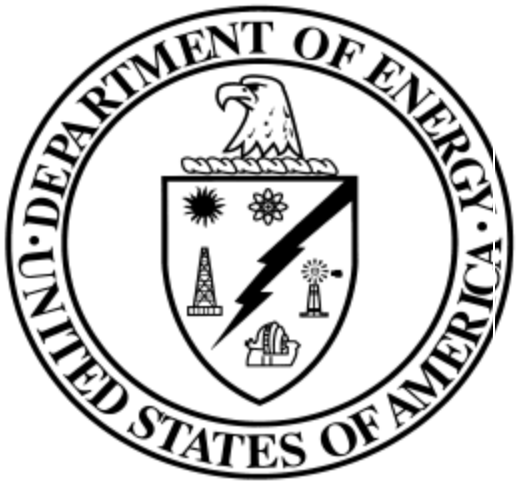
U.S. DEPARTMENT OF ENERGY
DEPARTMENT-WIDE
FUNCTIONAL AREA QUALIFICATION STANDARD

TRANSPORTATION AND TRAFFIC MANAGEMENT

Defense Nuclear Facilities Technical Personnel



U.S. Department of Energy
Washington, D.C. 20585

November 1999

APPROVAL

The Federal Technical Capability Panel consists of senior Department of Energy managers responsible for overseeing the Federal Technical Capability Program. This Panel is responsible for reviewing and approving the Qualification Standard for Department-wide application. Approval of this Qualification Standard by the Federal Technical Capability Panel is indicated by signature below.

Steven D. Richardson

S.D. Richardson, Chair
Federal Technical Capability Panel

CONTENTS

ACKNOWLEDGEMENTS

The DOE-EM Office of Training and Education, working with the National Environmental Training Office, (NETO) is the Sponsor for the Transportation and Traffic Management Functional Area Qualification Standard. The Sponsor is responsible for coordinating the development and/or review of the Functional Area Qualification Standard by subject matter experts to ensure that the technical content of the standard is accurate and adequate for Department-wide application for those involved in transportation and traffic management. The Sponsor, in coordination with the Federal Technical Capability Panel, is also responsible for ensuring that the Functional Area Qualification Standard is maintained current.

The following subject matter experts (SMEs) participated in the development and/or review of this qualification standard:

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U.S. DEPARTMENT OF ENERGY
FUNCTIONAL AREA QUALIFICATION STANDARD

FUNCTIONAL AREA

Transportation and Traffic Management

PURPOSE

The Department's Federal Technical Capability Program Policy, issued by the Secretary in December 1998, commits the Department to continuously strive for technical excellence. The Technical Qualification Program, along with the supporting technical Functional Area Qualification Standards, complements the personnel processes that support the Department's drive for technical excellence. In support of this goal, the competency requirements defined in the technical Functional Area Qualification Standards should be aligned with and integrated into the recruitment and staffing processes for technical positions. The technical Functional Area Qualification Standards should form, in part, the primary basis for developing vacancy announcements, qualification requirements, crediting plans, interviewing questions, and other criteria associated with the recruitment, selection, and internal placement of technical personnel. Office of Personnel Management minimum qualification standards will be greatly enhanced by application of appropriate materials from the Technical Functional Area Qualification Standards.

The Technical Functional Area Qualification Standards are not intended to replace the U.S. Office of Personnel Management's (OPM) Qualifications Standards nor other Departmental personnel standards, rules, plans, or processes. The primary purpose of the Technical Qualification Program is to ensure that employees have the requisite technical competency to support the mission of the Department. The Technical Qualification Program forms the basis for the development and assignment of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities.

APPLICABILITY

The Transportation and Traffic Management Functional Area Qualification Standard establishes common functional area competency requirements for Department of Energy transportation and traffic management personnel who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities. The technical Functional Area Qualification Standard has been developed as a tool to assist DOE Program and Field offices in the development and implementation of the Technical Qualification Program in their organization. Program and Field offices may choose to use this technical Functional Area Qualification Standard as-is, or they may use parts of it to facilitate the development of their own unique Technical Qualification Standards. In either case, satisfactory and documented attainment of the competency requirements contained in this technical

Functional Area Qualification Standard, or similar Standards, ensures transportation and traffic management personnel possess the requisite competence to fulfill their functional area duties and responsibilities. Office/Facility-Specific Qualification Standards supplement this technical Functional Area Qualification Standard and establish unique operational competency requirements at the Headquarters or Field element, site, or facility level.

IMPLEMENTATION

This technical Functional Area Qualification Standard identifies the technical competency requirements for transportation and traffic management personnel. Although there are other competency requirements associated with the positions held by Transportation and Traffic Management personnel, this Functional Area Qualification Standard is limited to identifying the specific technical competencies. The competency statements define the expected knowledge and/or skill that an individual must meet. Each of the competency statements is further explained by a listing of supporting knowledge and/or skill statements. **The supporting knowledge and/or skill statements are not requirements and do not necessarily have to be fulfilled to meet the intent of the competency.**

The competencies identify a familiarity level, a working level, or an expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. These levels are defined as follows:

> **Familiarity level** is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge.
>
> **Working level** is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.
>
> **Expert level** is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.
>
> **Demonstrate the ability** is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

Headquarters and Field elements shall establish a program and process to ensure transportation and traffic management personnel possess the competencies required of their position. That includes the competencies identified in this technical Functional Area Qualification Standard or a similar Standard developed by the organization. Documentation of the completion of the requirements of the Standard shall be included in the employee's training and qualification record.

Equivalencies may be granted for individual competencies based upon an objective evaluation of the employee's prior education, experience, and/or training. Equivalencies shall be granted in accordance with the policies and procedures of the program or field office. The supporting knowledge and/or skill statements, while not requirements, should be considered before granting equivalency for a competency.

Training shall be provided to employees in the Technical Qualification Program that do not meet the competencies contained in the technical Functional Area Qualification Standard. Departmental training will be based upon appropriate supporting knowledge and/or skill statements similar to the ones listed for each of the competency statements. Headquarters and Field elements should use the supporting knowledge and/or skill statements as a basis for evaluating the content of any training courses used to provide individuals with the requisite knowledge and/or skill required to meet the technical Functional Area Qualification Standard competency statements.

EVALUATION REQUIREMENTS

Attainment of the competencies listed in this technical Functional Area Qualification Standard should be documented by a qualifying official or the immediate supervisor of Transportation and Traffic Management personnel using any of the following methods:

- Documented evaluation of equivalencies
- Written examination
- Documented oral evaluation
- Documented observation of performance

DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of defense nuclear facility technical personnel assigned to the Transportation and Traffic Management Functional Area:

1. Evaluates transportation and traffic management programs to determine whether the program complies with applicable codes, standards and guides, regulations, Orders and accepted practices (security, logistics, waste management, etc.)

2. Appraises site transportation and carrier operations to determine their adequacy to protect the worker and members of the general public from the consequences of a transportation incident/accident.

3. Administers and coordinates transportation and traffic management programs for the Department, including performing independent evaluations and special studies.

4. Provides technical assistance and advice in the area of transportation and traffic management to other organizations and independent review groups.

5. Reviews site and/or contractor performance to identify trends indicative of performance or compliance status.

6. Performs technical reviews and provides recommendations on Transportation and Traffic Management Program documents (transportation plans, NEPA, SARP, schedules, etc).

7. Assists and/or advises emergency preparedness and emergency response support personnel related to transportation incidents in conjunction with contractor, Federal, State and local officials, as required.

8. Develops, reviews and implements transportation policy, requirements and guidance.

Position-specific duties and responsibilities for Transportation and Traffic Management personnel are contained in their Office/Facility-Specific Qualification Standard or Position Description.

BACKGROUND AND EXPERIENCE

The U. S. Office of Personnel Management's Qualification Standards Handbook establishes minimum education, training, experience, or other relevant requirements applicable to a particular occupational series/grade level, as well as alternatives to meeting specified requirements.

The preferred education and experience for Transportation and Traffic Management personnel are:

1. Education:

   Bachelor of Science or Arts degree from an accredited institution or equivalent or meet the alternative requirements specified in the Qualification Standards Handbook for the GS-2130, Traffic Management Series.

2. Experience:

   Industry, facility, operations, other Federal related experience that has demonstrated background in Transportation and Traffic Management.

REQUIRED TECHNICAL COMPETENCIES

Each of the competency statements defines the level of expected knowledge and/or skill that an individual must possess to meet the intent of this Standard. **The supporting knowledge and/or skill statements further describe the intent of the competency statements but are not requirements.**

Note: When regulations or Department of Energy directives are referenced in the Qualification Standard, the most recent revision should be used.

SCIENTIFIC PRINCIPLES

Chemistry

1. Transportation and traffic management personnel shall demonstrate a familiarity level knowledge of chemical terms related to transportation as defined in 49 CFR and 40 CFR as applicable.

Supporting Knowledge and/or Skills

a. Discuss the following terms:

- Boiling Point
- Characteristic waste (reactive, corrosive, toxic, flammable)
- Combustible liquid
- Corrosive material
- Density
- Explosive
- Flammable gas, liquid, solid
- Flash point
- Gas
- Infectious substance
- Inhalation Hazard
- Liquid
- Mixture
- Nonflammable gas
- Oxidizer
- Poisonous materials (toxic)
- Pyrophoric
- Radioactive material
- Solid
- Solution
- Vapor

- Waste codes (F, P, U, D)
- Waste stream
- Water reactive

Statistics and Measurements

2. Transportation and traffic management personnel shall demonstrate a familiarity level knowledge of solving problems involving probability and simple statistics.

Supporting Knowledge and/or Skills

a. State the definition of the following statistical terms:

- Mean
- Variance
- Standard deviation of the mean
- Median
- Mode
- Standard deviation

b. Explain the structure and function of distributions.

c. Calculate the mathematical mean of a given set of data.

d. Calculate the mathematical standard deviation of the mean of a given set of data.

e. Given the data, calculate the probability of an event.

f. Describe how measures of samples (i.e., measures of central tendency and variability) are used to estimate population parameters through statistical inference.

g. Discuss Type I and Type II decision errors and the relationship to sampling and confidence levels.

3. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of converting international to U.S. measurements and vice versa.

Supporting Knowledge and/or Skills

a. Convert curies to terabecquerels and terabecquerels to curies.

b. Convert pounds to kilograms and kilograms to pounds.

c. Convert inches to millimeters and millimeters to inches.

d. Convert rem/hr to Sievert/hr.

e. Convert cubic meters to cubic feet and cubic feet to cubic meters.

f. Convert gallons to liters and liters to gallons.

Engineering Drawings

4. Transportation and traffic management personnel shall demonstrate the ability to read and interpret engineering drawings including the information contained in the title block, the notes and legend, the revision block, and the drawing grid.

Supporting Knowledge and/or Skills

a. Identify the information used on engineering drawings for packaging preparation:

- Blocking and bracing
- Dimensions
- DOT specification
- DOT/NRC Testing requirements
- Flanges
- Gasket material
- Lifting points
- Material specifications
- Relief valves
- Torquing requirements

Problem Analysis

5. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of problem analysis principles and techniques necessary to identify problems, determine potential causes of the problems, and identify corrective actions(s).

Supporting Knowledge and/or Skills

a. Describe and explain the application of problem analysis techniques including the following:

- Barrier Analysis
- Causal Factor Analysis
- Change Analysis
- Management Oversight Risk Tree Analysis
- Root Cause Analysis

b. Describe and explain the application of the following Root Cause Analysis processes in the performance of occurrence investigations:

- Events and Causal Factors Charting
- Root Cause Coding
- Recommendation Generation

c. Compare and contrast Type A, Type B, and Type C investigations and discuss an example of the application of each.

d. Explain the necessity for and differences between the immediate, short term, and long term actions taken as the result of a problem identification or occurrence.

e. Explain and apply problem analysis techniques to the identification of potential problems and/or the prevention of problems. Include data gathering techniques and the use of trending/history in your explanation.

f. Participate in a contractor problem analysis and critique the results.

INTEGRATED SAFETY MANAGEMENT

6. Transportation and Traffic Management personnel shall demonstrate a working knowledge of the purpose and requirements of DOE P 450.4, Safety Management Policy.

Supporting Knowledge and/or Skills

a. Describe the purpose, scope, and application of the requirements detailed DOE P 450.4, Safety Management Policy.

b. Describe the Integrated Safety Management System (ISMS) Objective.

c. List and explain the five core functions set forth in the Safety Management System policy.

d. List and explain the seven guiding principles of the Safety Management System policy, including their relationship to the five core functions of the Safety Management System policy.

e. Given the Integrated Safety Management System (ISMS) guide discuss the process for tailoring the ISMS to transportation and traffic management activities, including both DOE and contractor responsibilities in the tailoring process.

Industrial Safety

7. Transportation and Traffic Management personnel shall demonstrate a familiarity level knowledge of the Occupational Safety and Health Act (OSHA) requirements in the following documents:

- **DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees**
- **29 CFR 1910, Occupational Safety and Health Standards**
- **29 CFR 1926, Safety and Health Regulations for Construction**

Supporting Knowledge and/or Skills

a. Discuss the application and impact of OSHA on Department transportation activities.

b. Identify the requirements in the OSHA that form the basis of authority for transportation personnel in the oversight and management of an activity.

c. Discuss the requirements for the performance of a preliminary hazard analysis and an activity hazard analysis. Include in the discussion each of the following elements:

- Responsibility for the performance of these analyses
- Purpose and content of the analyses
- When the analyses are required to be performed

d. Discuss the contractor's responsibility for providing necessary training to employees in the area of safety and health on the worksite.

e. Discuss the transportation and traffic manager's responsibility for on-site safety and health inspections.

f. Discuss the contractor's required response to an identified safety and/or health hazard.

8. Transportation and Traffic Management personnel shall demonstrate a familiarity level knowledge of the requirements for the use of personal protective equipment.

Supporting Knowledge and/or Skills

a. Describe the principles governing the selection, use, and limitations of the following:

- Respirators
- Protective clothing

b. Describe the various types of equipment (devices or clothing) worn to protect a worker from exposure to hazardous substances and physical injury.

c. Describe the four levels of protection for workers at hazardous waste sites or for those workers conducting emergency response activities as defined by the Environmental Protection Agency.

9. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of the safety-related requirements for hazardous materials.

Supporting Knowledge and/or Skills

a. Discuss the hazards associated with corrosives (acids and alkalis).

b. Describe the general safety precautions necessary for the handling and storage of corrosives.

c. Discuss the general safety precautions regarding toxic compounds.

d. Describe the criteria used to determine if a compound is a health hazard and discuss the methods by which toxic compounds may enter the body.

e. Discuss the general safety precautions regarding the handling, and storage of compressed gases, including specifically hydrogen, oxygen, argon and acetylene.

f. Discuss the safety precautions for working with cryogenic liquids.

g. Explain the difference between a flammable liquid and a combustible liquid.

h. Describe the general safety precautions regarding the handling, and storage of flammable and combustible liquids.

i. Discuss the hazards associated with explosives.

j. Discuss the hazards associated with pyrophorics.

k. Discuss the hazards associated with dangerous when wet materials.

l. Discuss the hazards associated with oxidizers.

10. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of 29 CFR 1910.1096, Ionizing Radiation and 10 CFR 835, Occupational Radiation Protection.

Supporting Knowledge and/or Skills

a. Compare and contrast the dose equivalencies between a rem and other dose units.

b. Given appropriate data, classify an area as a "controlled area" and state the reasons for the classification.

c. Discuss the requirements related to the exposure of individuals to radiation in controlled areas; include any applicable dose limits.

d. Discuss the requirements related to the exposure of individuals to airborne radioactive material, include any applicable precautionary measures and personal monitoring requirements.

e. Discuss the requirements for posting the various types of radiation areas, include the requirements for exceptions to the posting requirements.

f. Discuss the requirements for exemptions for radioactive materials packaged for shipment.

g. Discuss the requirements related to notification of incidents.

h. Compare and contrast the term's "non-ionizing radiation" and "ionizing radiation."

11. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of the purpose and requirements of 49 CFR 173.400, Subpart I-Class 7 (Radioactive) Materials, as it pertains to radiological controls.

Supporting Knowledge and/or Skills

a. Discuss the DOT's objectives regarding the protection of the public and the environment from radiation.

b. Define the following terms:

- Beta and gamma emitters
- Contamination control
- Fissile material, controlled shipment
- Fissile materials
- Fixed contamination
- Low toxicity alpha emitters
- Non-fixed radioactive contamination
- Radiation level
- Radiation level limitations
- Specific activity

c. List and discuss the factors that must be considered pertaining to the release of materials and equipment having radioactive material as outlined in 49 CFR 173.441 and 173.443, Subpart I—Class 7 (Radioactive) Materials.

Occurrence Reporting

12. Transportation and Traffic Management personnel shall demonstrate working-level knowledge of DOE O 232.1, Occurrence Reporting and Processing of Operations Information.

Supporting Knowledge and/or Skills

a. State the purpose of the Order.

b. Define the following terms:

- Condition
- Event
- Facility
- Notification report
- Occurrence report
- Reportable occurrence

c. Discuss the Department's policy regarding the reporting of occurrences as outlined in the Order.

d. State the different categories of reportable occurrences and discuss each.

e. Refer to Attachment 1 to DOE O 232.1, Occurrence Reporting and Processing of Operations Information, and discuss the role of transportation personnel in transportation-related reportable occurrences.

FUNCTIONAL AREA SPECIFIC

Packaging of Hazardous Material

13. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of packaging hazardous materials.

Supporting Knowledge and Skills

a. Describe the procurement process including:

- Vendor qualifications
- Quality Assurance
- Receipt inspection
- Material and package compatibility
- Packaging specifications and testing requirements

b. Describe the following different types of packaging and their use:

- Bulk packaging
- Combination packaging for liquids and solids
- Composite packaging
- Empty
- Excepted packaging
- Industrial packaging
- Inner packaging
- Non-bulk packaging
- Outer packaging
- Overpack
- Salvage
- Single packaging
- Specification packaging
- Strong outside container
- Strong tight package

c. Identify the different Packaging Groups and associated dangers.

d. Describe the package selection process for a given material.

e. Describe the process for acquiring and using a DOT package exemption and Party-to-Exemption.

f. Verify the proper loading and tie-down of the package on the conveyance prior to shipment.

14. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of traffic management.

Supporting Knowledge and/or Skills

a. Define the following terms and explain the seller and buyer obligations as identified in the DOE Transportation Operations Manual:

- Free on board (FOB) origin, freight collect
- FOB Origin, freight prepaid and charged back
- FOB Destination, freight prepaid
- FOB Destination, freight collect and allowed

b. Explain the limits of carrier liability and identify carrier insurance requirements.

c. Describe the administrative controls governing the distribution of hazardous material onsite.

d. Identify and evaluate the types of information required for developing transportation cost data for budgeting purposes.

e. Determine that an adequate base of transportation services exists to support present and future programs.

f. Input/use data to the National Transportation Program Central Database to obtain and or issue reports.

g. Assess impacts of changes in industry services, regulations, and cost structure through appropriate trade magazines, Internet, etc.

h. Compare and contrast the terms listed below:

- Carrier
- Commercial motor vehicle
- Demurrage
- Intermodal
- Less than truckload
- Mode
- Precious metals
- Premium transportation

15. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of shipping activities.

Supporting Knowledge and/or Skills

a. Describe the process for tracing and expediting urgent sensitive shipments.

b. Review or assist in the review of freight charges on carrier bills and/or vendor invoices.

c. Negotiate demurrage agreements and detention with the carrier.

d. Provide for the import/export of goods through customs and determine duty/duty-free status (including obtaining appropriate license).

e. Coordinate loading arrangements (including oversize loads requiring special equipment).

f. Direct or assist in the preparation of transportation shipping papers and documentation records.

g. Review contractor arrangements for the transportation of household goods.

h. Identify the documents required by DOE Order 534.1 for audits conducted by GSA.

16. Transportation and Traffic Management personnel shall demonstrate a working level knowledge on the preparation and applicability of transportation documents.

Supporting Knowledge and/or Skills

a. Determine when the following documents are required:

- Claim Form
- Commercial straight form Bill of Lading
- Export Declaration
- Express Airbill
- Freight Bill
- Government Bill of Lading
- Material Safety Data Sheet
- Tender
- Weight Ticket

17. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of routing freight.

Supporting Knowledge and/or Skills

a. Evaluate carrier service characteristics including: carrier capability, carrier performance record, transit time, equipment requirements, site preference, and specialty services.

b. Arrange for physical protection of shipments as necessary.

c. Identify the advantages/disadvantages of the different modes of transportation including rail, water, air, and motor carrier.

18. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of selecting carriers.

Supporting Knowledge and/or Skills

a. Review and approve terms of sale affecting transportation services.

b. Evaluate the transportation fleet equipment maintenance programs.

c. Review specifications for truck and rail equipment.

d. Explain the legal authorization of carrier selection for the government (41 CFR 109-40).

e. Review and evaluate DOT carrier safety records.

19. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of handling freight claims.

Supporting Knowledge and/or Skills

a. File overage, loss or damage claims when appropriate and promote claims prevention in accordance with DOE negotiated tariffs.

b. File undercharge/overcharge claims/correct carrier billings prior to offset payment.

Carrier Operations

20. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of carrier operations in the modes of motor carrier, air, rail, and vessel transport.

Supporting Knowledge and Skills

a. Determine if a shipment meets air transport requirements per 49 CFR 175.

b. Determine if a shipment meets vessel transport requirements per 49 CFR 176.

c. Determine if a shipment meets rail transport requirements per 49 CFR 174.

d. Determine if a shipment meets motor transport requirements per 49 CFR Parts 177 and 350-399.

Contracts

21. Transportation and Traffic Management personnel shall demonstrate the ability to coordinate with procurement on purchasing strategies.

Supporting Knowledge and/or Skills

a. Develop transportation cost and logistics analysis to purchasing for bid evaluation.

b. Assist in the negotiation of freight rates, transportation contracts, and transportation services.

c. Coordinate acquisition of transportation services.

22. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of 31 CFR and 41 CFR and related documents associated with tenders and contracts:

Supporting Knowledge and Skills

a. Identify unallowable costs associated with contracts and transportation shipments.

b. Determine the contractual qualifications for selecting carriers to perform transportation and traffic management movements.

c. Assist in negotiating tenders and contracts appropriate for transportation and traffic management services.

Hazardous Materials

23. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of the following Department of Energy (DOE) Directives and other documents:

- **DOE O 460.1A, Packaging and Transportation Safety**
- **DOE O 460.2, Departmental Materials Transportation and Packaging Management**
- **DOE O 461.1, Defense Programs Packaging and Transportation (draft)**
- **DOE O 414.1A, Quality Assurance**
- **DOE G 1324.5B, Guide for DOE 1324.5B Records Management**
- **DOE O 5632.1C, Protection and Control of Safeguards and Security Interests**
- **DOE O 151.1, Comprehensive Emergency Management**
- **DOE Transportation Operations Manual, DOE/DRM-1081**
- **DOE O 471.2A, Information Security Program**

Supporting Knowledge and/or Skills

a. Explain how the above documents apply to the transportation and traffic management operations within the Department of Energy, its sub-contractors and facilities.

24. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of the following federal and international regulations associated with hazardous material transportation:

- 49 CFR Parts 100-185
- 40 CFR, Parts 260, 261, 262, 263, 266, 279
- 10 CFR, Parts 71 & 73

- IAEA, International Atomic Energy Agency, "Regulations for the Safe Transport of Radioactive Materials"
- ICAO, International Civil Aviation Organization "Technical Instructions for the Safe Transport of Dangerous Goods by Air"
- IATA (industry requirement), International Air Transport Association, "Dangerous Goods Regulations"
- IMDG Code, International Maritime Dangerous Goods
- SARA Title III
- 40 CFR 61, NESHAPS

Supporting Knowledge and/or Skills

The following knowledge and/or skills generally apply to the above regulations. Transportation and traffic management personnel should have a working level knowledge as it applies to a specific regulations.

a. Determine the hazardous classification of the material being shipped.

b. Determine the proper packaging for the material being shipped.

c. Determine the appropriate entries that are required for the shipping paper/waste manifest

d. Determine the appropriate markings required for the package being shipped.

e. Determine the appropriate labels required for the package being shipped.

f. Determine the appropriate placards for the conveyance.

g. Determine the appropriate emergency response information that is required.

h. Determine the appropriate training requirements for personnel involved in the transportation activity.

i. Determine pre-notification and physical security requirements for spent nuclear fuel and high level waste.

j. Determine the appropriate requirements for shipping RCRA and TSCA waste.

k. Compare and contrast the terms listed below as applied in the regulations above:

- Cargo aircraft only
- Cargo tank
- Competent authority
- Detention
- Domestic transportation

- Drum
- Exclusive use
- Gross weight or gross mass
- Hazard class
- Hazardous material
- Hazardous substance
- Hazardous waste
- Hazmat employee
- Highway Route Controlled Quantity
- Limited quantity
- Marine Pollutant
- Mixture
- Packing group
- Portable Tanker
- Preferred route
- Primary hazard
- Proper shipping name
- Reportable quantity
- Residue
- Shipping paper
- State
- Technical name
- Transport vehicle

l. Explain the relationship between IAEA regulations and DOT regulations.

25. Transportation and Traffic Management personnel shall demonstrate working-level knowledge of the transportation of radioactive material as defined in 49 CFR 173.400 and 10 CFR Parts 71 & 73.

Supporting Knowledge and/or Skills

a. Define the following terms and how they apply to radioactive shipments:

- Empty
- Excepted quantity
- Fissile
- Fissile excepted
- Highway route controlled quantity
- Industrial packaging
- Limited quantity
- Low specific activity
- Normal form
- Radioactive instruments and articles

- Radioactive material
- Special form
- Surface contaminated object
- Transportation Index
- Type A package
- Type B package

b. Describe when the following labels are applicable:

- Empty label
- Radioactive White I
- Radioactive Yellow II
- Radioactive Yellow III

c. Describe the general design requirements for Type A and Type B packages

d. Describe the general design requirements for Industrial Packages 1, 2, and 3.

e. Determine the radiation level limitations as defined by DOT.

f. Determine the thermal limitations as defined by DOT.

g. Determine the contamination control requirements as defined by DOT.

h. Determine the quality control requirements that must be made prior to the shipment of radioactive materials.

i. Describe the routing requirements for class 7 radioactive material, highway route controlled quantities, unclassified high-level radioactive waste shipments and spent nuclear fuel.

j. Describe what shipments are subject to the physical security requirements of DOE O 473.1, Physical Protection of Safeguards and Security Interests (draft).

k. Describe the procedures for the shipment of international shipment of nuclear materials in which DOE operations offices or their contractors participate. (Transportation Operations Manual).

l. Describe the certification process for Type B and fissile material packaging.

m. Determine empty package requirements

26. Transportation and Traffic Management personnel shall demonstrate a familiarity-level knowledge of emergency response and reporting.

Supporting Knowledge and/or Skills

a. Describe the DOE Emergency Management System delineated in DOE O 151.1

b. Describe the EM-1 Transportation Emergency Preparedness Program

c. Describe the 49 CFR requirements for emergency information.

Assessments

27. Transportation and Traffic Management personnel shall demonstrate a working level knowledge of assessing transportation and traffic management operations.

Supporting Knowledge and Skills

a. Describe the role transportation and traffic management personnel have with respect to performance oversight of Government-Owned, Contractor-Operated (GOCO) facilities.

b. Describe the assessment requirements and limitations associated with the oversight of contractor transportation and traffic management personnel.

c. Describe how planning, observations, interviews, and document research are used during an assessment.

d. Explain the essential elements of a performance-based assessment including the areas of investigation, fact-finding, and reporting. Include a discussion of the essential elements and processes associated with the following assessment activities:

- Exit interviews
- Closure process
- Tracking to closure
- Follow-up
- Contractor corrective action implementation

e. Describe the actions to be taken if the contractor challenges the assessment findings and explain how such challenges can be avoided.

APPENDIX A

CONTINUING EDUCATION, TRAINING AND PROFICIENCY PROGRAM

The following list represents suggested continuing education, training and other opportunities that are available for transportation and traffic management personnel after completion of the competency requirements in this technical Functional Area Qualification Standard. It is extremely important that personnel involved with transportation and traffic management maintain their proficiency through continuing education, training, reading and other activities such as workshops, seminars, and conferences. The list of suggested activities was identified by the Subject Matter Experts involved in the development of the Functional Area Qualification Standard as being required by 49 CFR 172.700, Subpart H, Training. Individuals within the Transportation and Traffic Management Functional Area shall receive recurrent training every three years for 49 CFR activities and every two years for IATA activities.

Based on the knowledge and experience of the Subject Matter Experts, it is suggested that learning activities listed below are necessary to maintain proficiency in the transportation and traffic management functional area after completion of the competencies in the Standard and other requirements of the Technical Qualification Program.

LIST OF CONTINUING EDUCATION, TRAINING AND OTHER ACTIVITIES

1. **General Awareness/familiarization training.** This training should be designed to provide familiarity with the requirements of 49 CFR Chapter I, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards of 49 CFR.

2. **Function-specific training.** This training will provide function-specific training concerning requirements of 49 CFR, Chapter I, or exemptions issued under 49 CFR, Chapter I, which are specifically applicable to the functions the employee performs.

3. **Safety training.** Each HAZMAT employee shall receive safety training concerning: emergency response; measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the work place, including specific measures the hazmat employer has implemented to protect employees from exposure; and methods and procedures for avoiding accidents.

4. **OSHA or EPA Training.** This training will be to comply with hazard communication programs required by OSHA or EPA.

Additional training not required by Federal Regulations

1. Contracting Officer Representative Training

2. Auditor training